FY-11 file

18 April 1969

1. It is anticipated that by FY 1972 the NPIC R&D program will have transposed from a short-term quick pay-off solution oriented program and have laid the foundation for a systems oriented program. Inasmuch as it is premature to predict individual projects that far in the future, we prefer to program our R&D effort into nine general program efforts representing a functional breakdown of the imagery exploitation process.

The attached chart represents the nine categories, their titles, and how we prefer to program the money against the categories for the period of FY 1972 through FY 1975. Included in the programs are the minimum sums considered necessary to prepare for and eventually handle Real Time Systems.

2. The type of projects for consideration in each of these programs efforts is as follows:

I. Image Interpretation Research -- As new systems are designed and proposed, continued research will be required in the human factors relating to image interpretation. [redacted] 25X1
25X1 [redacted] will require considerable efforts to insure adequate exploitation of these materials without adverse effects on the imagery interpreters or loss of efficiencies.

II. Image Analysis and Manipulation -- Continued efforts can be anticipated in digital image restoration, image quality measures, micro-image characteristics, ATR image specifications and etc., with
25X1 increased emphasis on [redacted] systems as the system parameters become firmer. Also to be anticipated are efforts in hybrid image manipulation, improved processing parameter specifications, improved quality measurement devices, and in determination of color and bi-color values. Also for consideration in this time period are addi-
25X1 tional studies in [redacted]

III. Information Technology -- Within this program element lies the greatest potential for increasing the productivity of the Center without significant personnel increases. The types of projects under consideration are advanced film handling equipment, automated editing and reporting techniques, expanded collateral retrieval and display techniques, and improved printing techniques. This program area in general will also encompass work developing an improved and expanded integrated information system. Additional work is also anticipated in further development of an integrated chip system within the Center.

IV. Reproduction Techniques and Equipment -- It is anticipated that by this time period use of dry photo process will become an operation reality and new lines of reproduction equipment as well

as product improvements of equipment currently programmed for will be required. New and advanced chip production equipment is also anticipated.

V. Image Interpretation Instruments and Techniques -- The process of building better image interpretation equipment is a continual process, and it is anticipated that new systems will require considerably different equipment than we are currently developing. Continued work in the Image Analysis and Image Interpretation Process programs will play a major role in determining requirements for new projects in this program area. The types of projects anticipated are advanced projection viewers, stereo scanning equipment, target or change detection equipment, and continued optical system development.

VI. Mensuration Equipment and Techniques -- This program area will depend heavily on the development of new acquisition systems and the precise measurement studies requested in previous programs for the development of requirements for specific projects. Examples of anticipated projects are advanced analytic stereo plotters, data block readers, and rapid response mensuration devices.

VII. Test and Evaluation Equipment and Techniques -- As the Center's equipment becomes more specialized and complex it becomes increasingly difficult to depend on available instrumentation for testing and maintenance purposes. It therefore becomes necessary to develop specialized equipment to effectively maintain our development and maintenance programs. The specific projects in this program area are totally dependent on equipment still in or yet to go in the development stages and it is therefore premature to predict the actual projects.

VIII. Real-Time System -- At this point in time, we know very little about some parts of a real-time exploitation system and a lot about some others. In FY 71 (possibly to some limited extent in FY 70), we plan to concentrate on checking feasibility of components and subsystems rather than laying out a working model or prototype of the whole system. This will permit us to gain experience and knowledge while exploring alternatives in coming up with a system design, starting around the end of FY 71.

IX. Systems Integration Support -- This program area includes external management support of an operations research nature not directly applicable to one of the other program elements. The type of projects that may be considered are advanced exploitation technology planning, the design and integration of systems, including training and maintenance, and the development of techniques to facilitate internal control of the Research, Development, Test, Evaluation and Maintenance programs.

25X1

25X1 I. Image Interpretation Process Research
Imagery Interpretation Research
25X1

II. Image Analysis & Manipulation
25X1 Imagery Analysis
25X1 Photo Image Manipulation Viewer Study

25X1 III. Information Technology
Chip Storage & Retrieval
25X1 Automatic Transport of Materials

25X1 IV. Reproduction Materials & Equipment
Dry Silver & Non-Silver Processes
25X1 Automatic Dodging Equipment

25X1 V. Image Interpretation Equipment & Techniques
Automatic Target Recognition
25X1 PI Correlated Stereogram Maker
25X1 Ultra Violet Rear Projection Viewer

VI. Mensuration Equipment & Techniques
25X1 Mensuration Equipment
25X1 Precise Measurement Studies

25X1 VII. Test & Evaluation Equipment & Techniques

VIII. Real-Time System

IX. Systems Integration Support

TOTAL